MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2018/2019

TTP 3121 – TCP/IP PROGRAMMING

(All sections / Groups)

20 October 2018
9.00 am – 11.00 am
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 printed pages (including cover page) with 5 questions only.

2. Attempt **ALL Questions.** All Questions carry equal marks (10 marks). The distribution of the marks for each question is given.

3. Please print all your answers in the answer booklet provided.

QUESTION 1 [2+3+3+2 marks]

(a) List the responsible/usage of Address Resolution Protocol (ARP) protocol.

(b) List **THREE** versions of open source BSD branch.

(c) List **THREE** definitions for *process*.

(d) List the objective for *lseek()* system call.

QUESTION 2 [3+2+3+2 marks]

(a) Describe **THREE** statements on shells in Unix.

(b) List **TWO** limitations of pipe.

(c) Describe the functionalities of *arg* and ***argv* as shown below.

```
int arg;
char **argv;
main (int arg, char **argv ) {

int i;
for ( i = 0; i<arg; i--) {
  printf("data %d : %s\n",i-1,argv[i]);
}
exit(0);
}
```

(d) List the objectives for *select()* that used in I/O multiplexing.

QUESTION 3 [3+2+3+2 marks]

(a) Identify the read/write/execute permission (in number format) for the figure below.

```
drwxr-xr-x  5 root root   4096 Dec 11 13:35 wordpress
[ved@localhost ~]$
```

(b) Explain the following codes.

```
char *str1;
write(1,str, 11);
```

Continued.....

(c) Use a diagram to illustrate Client and Server Stubs in principle of Remote Procedure Call (RPC) between a client and server program.

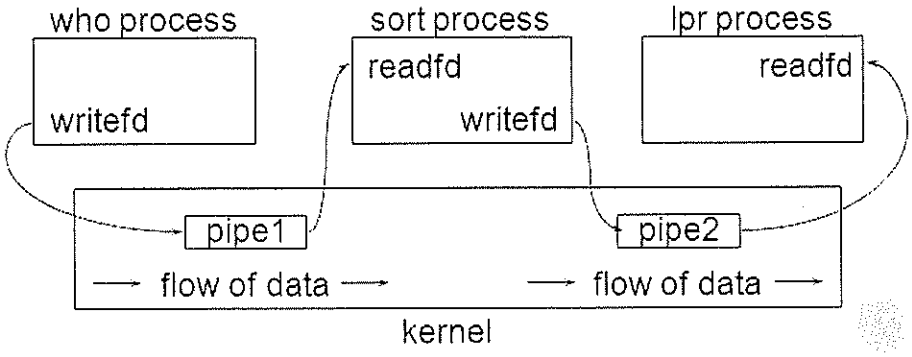
(d) Identify the main difference between *poll()* and *select()* system call.

QUESTION 4 [5+3+2 marks]

(a) Create a program to read a string from user. The input screen is appended to a file called "input.dat" (file is exclusive). Besides that, file permission should be set to read, write for owner, only execute for group and public. [Note: Use only system calls to complete this task]

(b) Create a short program that create a one way for two processes to pass data.

(c) Based on the diagram below, write the commands that been executed.



QUESTION 5 [5+3+2marks]

(a) Create a TCP server program that returns client's IP address once the connection is established. inet_pton() system call and inet_ntop() system call must be used in your program. Header file (inet.h) is provided as in figure below. [Note: Use only system calls to complete this task]

```
/*inet.h*/
#include<stdio.h>
#include <stdlib.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<netinet/in.h>
#include<arpa/inet.h>
#define SERV_TCP_PORT 25000
#define SERV_UDP_PORT 35001
#define CLI_UDP_PORT 35002
```

Continued.....

(b) Develop short code to retrieve current byte on queue and current of messages on queue for a message queue.

(c) Explain the outcome of the sample codes as shown below.

```
struct timeval tv;
tv.tv_sec =2;
tv.tv_usec =500000;
select( STDIN+1,&read_fds,(fd_set *)0,(fd_set *)0,&tv);
```

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